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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/051,158	01/22/2002	Tsutomu Nakamura	020062	7925

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EXAMINER

SELBY, GEVELL V

ART UNIT PAPER NUMBER

2615

DATE MAILED: 07/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/051,158

Applicant(s)

NAKAMURA ET AL.

Examiner

Gevell Selby

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3,6 and 13-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3,6 and 13-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 3, 6, and 13-15 have been considered but are moot in view of the new ground(s) of rejection.
2. The indicated allowability of claims 3 and 6 is withdrawn in view of the newly discovered reference(s) to Bauer et al., US 6,130,448. Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

2. **Claims 3 and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Bauer et al., US 6,130,448.**

In regard to claim 3, Bauer et al., US 6,130,448, discloses a solid-state image pickup apparatus comprising:

a solid-state image pickup device chip (see figure 8, element 22) having a bump formed thereon (see figure 8, element 120), and a hermetic seal portion provided over the solid-state image pickup device chip having a flat-plate portion formed of a transparent member (see figure 8, element 126 and column 5, lines

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56-65 and column 11, lines 20-25) and a frame portion disposed on a side portion of a lower surface of the flat-plate portion (see figure 8, element 24 and 28);

said frame portion at least including a metal wiring (see figure 2, elements 30), a bump (see figure 8, element 120) formed on said solid-state image pickup device chip and electrically connected to the metal wiring, and a sealed region for sealing the periphery of the bump by a sealing material (see figure 2, element 124, column 5, lines 43-55 and column 11, lines 11-19: The seal material surrounds the optical sensor and the bumps);

the frame portion further includes a frame base portion (see figure 8, element 28) and said metal wiring is formed on one surface of said frame base portion (conductive strip 30 is formed on the bottom surface) while the other surface of the frame base portion is adhered to said flat-plate portion (window 126 is formed on the top surface).

In regard to claim 13, Nakada, US 6,399,995, discloses the solid-state image pickup apparatus comprising:

a solid-state image pickup device chip (see figure 2, element 20) having a bump formed thereon (see figure 2, element 46), and a hermetic seal portion provided over the solid-state image pickup device chip having a flat-plate portion formed of a transparent member (see figure 2, element 48 and column 5, lines 56-65) and a frame portion disposed on a side portion of a lower surface of the flat-plate portion (see figure 2, element 28);

said frame portion at least including a metal wiring (see figure 2, elements 30, 32, and 38), a bump (see figure 2, element 46) formed on said solid-state image pickup device chip and electrically connected to the metal wiring, and a sealed region for sealing the periphery of the bump by a sealing material (see column 5, lines 43-55);

wherein a wiring region is formed from an electrode pad (see figure 2, element 30) provided on said solid-state image pickup device chip to a side surface so that an external terminal can be electrically connected to the wiring region or the electrode pad region (see figure 2, element 36).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 6 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bauer et al., US 6,130,448.**

In regard to claims 6 and 15, Bauer et al., US 6,130,448, discloses the solid-state image pickup apparatus according to claims 3 and 13, respectively. The reference does not disclose wherein an anisotropic conductive material is used as said sealing material.

Official Notice is taken that it is well known in the art to use epoxy resin dispersed with metallic particles that provides anisotropic properties. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have been motivated to configure the sealing material of the Bauer reference in to be a conductive anisotropic material in order to provide a stronger longer lasting seal.

5. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bauer et al., US 6,130,448, in view of Hzima et al., US 6,483,179.

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

In regard to claim 14, Bauer et al., US 6,130,448, discloses a fabricating method of solid-state image pickup apparatus having a hermetic seal portion provided over a

solid-state image pickup device chip comprising a flat-plate portion formed of a transparent member and a frame portion disposed at a side portion of a lower surface of the flat-plate portion, said fabricating method of solid-state image pickup apparatus including the steps of:

integrally and at once in a manner corresponding to each individual solid-state image pickup device chip, forming a hermetic seal portion comprising a flat-plate portion made of a transparent member, and a frame portion at least including a metal wiring disposed at a side portion of a lower surface of the flat-plate portion having a metal wiring, a bump formed on solid-state image pickup device chip and electrically connected to the metal wiring, and a seal region for sealing the periphery of the bump by a sealing material so that the frame portion is disposed on the lower surface of the flat-plate portion (see figure 2 and column 4, line 59 to column 5, line 55).

The Nakada reference does not disclose using this method over an entire wafer having a large number of solid-state image pickup device chips formed thereon; where a transparent member extended over the entire wafer is used as the flat-plate portion; and separating the wafer having the integrally formed hermetic seal portions thereon into solid-state image pickup device chips each having an individual hermetic seal portion.

Hzima et al., US 6,483,179, disclose a manufacturing method of a solid-state image pickup device wherein large number of solid-state image pickup device chips are formed on a wafer (see figures 6 and 7); where a transparent member extended over the entire wafer is used as the flat-plate portion (see figure 7, element 6a); and separating the wafer having the integrally formed hermetic seal portions thereon into solid-state image

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pickup device chips each having an individual hermetic seal portion (see column 4, line 63 to column 5, line 10).

It would have been obvious to one of ordinary skill in the art at the time of invention to have been motivated to modify Bauer et al., US 6,130,448, in view of Hzima et al., US 6,483,179, to use the method over an entire wafer having a large number of solid-state image pickup device chips formed thereon; where a transparent member extended over the entire wafer is used as the flat-plate portion; and separating the wafer having the integrally formed hermetic seal portions thereon into solid-state image pickup device chips each having an individual hermetic seal portion, in order to create multiple devices quicker and more efficiently.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Us 6,6221,616, discloses a solid state image pick-up device with a bump formed on the chip.

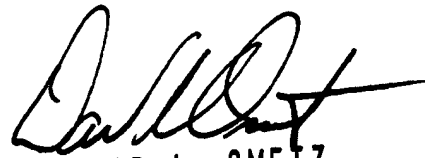
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gevell Selby whose telephone number is 571-272-7369. The examiner can normally be reached on 8:00 A.M. - 5:30 PM (every other Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Ometz can be reached on 571-272-7593. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

gvs



DAVID L. OMETZ
PRIMARY EXAMINER